UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,629	08/18/2003	Wei Li	50277-2248	4456

42425 7590 01/12/2011

HICKMAN PALERMO TRUONG & BECKER/ORACLE
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110-1083

EXAMINER	
ALAM, SHAHID AL	

ART UNIT	PAPER NUMBER
2162	

MAIL DATE	DELIVERY MODE
01/12/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WEI LI, JIANSHENG HUANG, and ARI MOZES

Appeal 2009-005241
Application 10/643,629[1]
Technology Center 2100

Before JEAN R. HOMERE, CAROLYN D. THOMAS, and
JAMES R. HUGHES, *Administrative Patent Judges*.

THOMAS, *Administrative Patent Judge*.

DECISION ON APPEAL[2]

---

[1] Application filed August 18, 2003. The real party in interest is Oracle International Corporation.

[2] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner's final decision rejecting claims 21-28. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We REVERSE.

The present invention relates to techniques for performing frequent itemset operations.

Claim 21 is illustrative:

> 21. A method for performing a frequent itemset operation, the method comprising the steps of:
>
> performing the frequent itemset operation in a plurality of phases, wherein each phase is associated with combinations that have a particular number of items;
>
> during at least one phase of the plurality of phases, performing the steps of
>
> determining candidate combinations that are to be evaluated during the phase;
>
> grouping the candidate combinations into clusters, wherein each cluster corresponds to a common combination of items, and wherein all candidate combinations in a given cluster include the common combination of items associated with the cluster;
>
> processing said candidate combinations, based on said clusters, to determine whether the candidate combinations satisfy a frequency criteria associated with said frequent itemset operation; and
>
> storing, in a computer-readable medium, data that indicates which candidate combinations satisfy

> the frequency criteria associated with said frequent itemset operation.

Appellants appeal the following rejection:

Claims 21-28 under 35 U.S.C. § 102(b) as anticipated by Agrawal (US 6,324,533 B1, Nov. 27, 2001).

FACTUAL FINDINGS

Specification

1a. Appellants' Specification discloses that "the term 'cluster' refers to a set of combinations that have a base bitmap in common." (Spec. ¶[0080].)

1b. Appellants' Specification further discloses that "[a]nother technique for clustering combination involves hashing the combinations into buckets based on sub-combinations." (Spec. ¶[0084].)

Agrawal

2. *Agrawal* discloses:

> The basic Apriori method for finding frequent itemsets makes multiple passes over the data. . . . in the candidate generation phase, the set of all frequent (k-1)-itemsets . . . is used to generate the candidate itemsets C_k. The candidate generation procedure ensures that C_k is a superset of the set of all frequent k-itemsets. The algorithm builds a specialized hash-tree data structure in memory out of C_k. . . . For each transaction, the algorithm determines which of the candidates in C_k are

> contained in the transaction using the hash-tree data structure and increments their support count.

(Col. 5, ll. 32-47.)

ANALYSIS

Our representative claim, claim 21, recites, *inter alia,* "*grouping the candidate combinations into clusters.*" All other independent claims recite similar limitations. Thus, the scope of each of the independent claims includes grouping the candidate combinations into clusters.

Issue: Did the Examiner err in finding that Agrawal discloses grouping the candidate combinations into clusters?

Appellants contend that "[n]othing is taught or suggested that even remotely may be interpreted as grouping the candidate combinations into clusters." (App. Br. 6.) Appellants further contend that "[b]oth sections of *Agrawal* cited by the Examiner refer to candidate *generation*, and *not* grouping candidate combinations *after* the candidate combinations have already been generated." (Reply Br. 5.) We agree.

While the Examiner has identified sections in *Agrawal* for allegedly teaching "grouping the candidate combinations into clusters," (*see* Ans. 3), the Examiner further appears to allege that grouping the candidate combinations into clusters is inherent in *Agrawal.* (Ans. 10.) We disagree on both accounts.

As for *Agrawal* allegedly disclosing the above-noted limitation, we find that while Agrawal discloses a *candidate generation* procedure, the Examiner has not identified, and we do not readily find, where Agrawal discloses *grouping the candidate combinations into clusters* and processing the candidate combinations based on the clusters.

In Appellants' Specification, a cluster is defined as a set of combinations that have a base bitmap in common (FF 1a) and that a technique for clustering involves hashing the combinations into buckets based on sub-combinations (FF 1b). While Appellants have defined a cluster as any superset, here, *Agrawal* merely discloses that C_k (candidate itemsets) is a superset of the set of all frequent k-itemsets (FF 2). In other words, *Agrawal's* candidates can be seen as one cluster within all frequent k-itemsets. However, claim 21 requires grouping the candidate combinations themselves into clusters, not putting the candidate itemsets into one cluster, as done in *Agrawal*. Thus, we cannot sustain the Examiner's rejection based on the above-noted teachings.

As for the Examiner's assertion that *Agrawal* inherently discloses "grouping the candidate combinations into clusters," we find this assertion unpersuasive. When relying upon a theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the Examiner's determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *Ex parte Levy*, 17 USPQ2d 1461, 1463-64 (BPAI 1990). Here, the Examiner merely makes

a determination without providing *any* basis in fact and/or technical reasoning (*see* Ans. 10). No factual support is provided by the Examiner, nor did the Examiner provide any technical reasoning to show that *Agrawal* inherently discloses grouping candidate combinations into clusters. *Agrawal's* mere mention of the terms *superset* and/or a *hash-tree* does not necessarily leads to the grouping of the "candidate combinations into clusters." "Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates." *In re Cruciferous Sprout Litig.,* 301 F.3d 1343, 1349 (Fed. Cir. 2002) (citations and internal quotation marks omitted). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson,* 169 F.3d 743, 745 (Fed. Cir. 1999) (citations omitted). We find that *Agrawal,* at best, *may* do further clustering. However, this is not sufficient under the laws of inherency. Thus, we also cannot sustain the Examiner's rejection based on inherency.

As such, based on the record before us, we find that the Examiner did err in rejecting representative claim 21. Accordingly, we reverse the rejections of claims 21-28.

DECISION

We reverse the Examiner's § 102(b) rejection.

REVERSED

rwk

HICKMAN PALERMO TRUONG & BECKER/ORACLE
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110-1083